

## **REMARKS**

This is a full and timely response to the non-final Office Action mailed August 3, 2005. Claims 1, 3 – 5, 7 – 12, 14, 16 – 18, 20 – 29, 31 – 40, 42 – 46, 48 – 52, 54 – 58, 60, 64, and 66 – 91 are pending. Specifically claims 1, 7 – 8, 14, 20 – 21, 26, 31 – 32, 36, 48, 60, and 64 have been amended, and claims 47 and 59 have been canceled without prejudice waiver, or disclaimer. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

### **I. General Remarks**

Applicant has made several amendments believed to clarify the claimed invention. The amended claims are believed to further highlight the substantial differences between the cited art and the claimed invention.

For example independent claims 1, 14, 26, 36, 48, and 60 are rejected as being allegedly unpatentable over U.S. Patent No. 6,553,063 to Lin, *et al.* (“*Lin*”).

Applicant is greatly appreciative for the detailed remarks provided in the Office Action that have assisted the Applicant understand the basis of the rejection. Applicant respectfully submits that the pending claims, as amended, address the concerns set forth in the Office Action and are believed to be patentable over *Lin*.

For example, claim 1 has been amended to include the feature of “receiving information *from* a destination transceiver, the information *comprising a first look-up table* and relating to a plurality of signal space constellation points supported by the destination transceiver.” *Lin* does not expressly disclose, nor does it teach or suggest this element. For example, Applicant has more explicitly recited that the first look-up-table is

included in the information transmitted from the destination transceiver. Additionally, the Office Action apparently indicates that the previously claimed step of “receiving information” was broadly construed to occur in one transceiver alone, which could be the destination transceiver itself. Thus, claim 1 is amended to more clearly recite that the information is received “from” the destination transceiver.

Although the above description is described with respect to claim 1, similar amendments are made to independent claims 14, 26, 36, 48, and 60, and are explained in more detail below.

Applicant acknowledges that *Lin* apparently describes a receiver and a transmitter that can individually select a constellation size (*e.g.* based on signal-to-noise ratio, strength, *etc.*). However, *Lin* does not disclose synchronizing the supported constellations between the transceivers. Additionally, the synchronization of the selection of the particular constellation size to be used (of those supported) is not disclosed. In fact, *Lin* apparently leaves this up to the reader. (*See*, col. 4, lines 60 – 63, “It is desirable for synchronization to be established between the constellation selection controller of a transmitter and the constellation selection controller of a corresponding receiver”).

Regardless of how the transceiver of *Lin* might synchronize the selection of a constellation size, the transceivers of *Lin* apparently rely on fixed information within the transceiver in order to do so (*e.g.* the Office Action apparently alleges this is constellation table 80). Thus, while the bit-rate of *Lin* is apparently selectable, a rather large assumption is made. Namely, that both the destination and source transceiver include compatible tables for encoding and/or decoding at the selected bit-rate. As noted in the

Office Action, “tables 80 of receiver 75 typically correspond to similar constellation tables in transmitted 90.” (Office Action, pg. 4). However, *Lin* makes no mention of how these tables are acquired or are made to be compatible with another transceiver. Thus, the transceivers disclosed in *Lin* can suffer from compatibility problems with transceivers that do not employ the same tables.

Unlike *Lin*, the claimed embodiments enable a standardized specification of a generalized transmitter and/or receiver to implement a number of encoding or mapping techniques. Unlike *Lin*, which uses static (but selectable) bit-rate information, the claimed embodiments could be said to “program” a transceiver with the capability to encode an integer number of bits into a plurality of symbols using the look-up-table. Thus, even assuming, *arguendo*, that *Lin* discloses, for example, a transmitter having a fractional encoder with static, but selectable, bit-rates, *Lin* does not provide the advantages of the claimed invention.

Now that a general understanding of these fundamental differences have been described, the claims are addressed individually.

**I. Claims 1, 7 – 9, 11 – 12, 14, 20 – 22, 24 – 26, 31 – 33, 35 – 36, 40, 42 - 43, 47-48, 52, 54 - 55, 60, 64, 66 - 67, 71 – 82 and 87 are Patentable Over *Lin***

The Office Action rejects claims 1 – 2, 7 – 9, 11 – 12, 14 – 15, 20 – 22, 24 – 26, 31 – 33, 35 – 36, 40, 42 - 43, 47 - 48, 52, 54 - 55, 60, 64, 66 - 67, 71 – 82 and 87 under 35 U.S.C. §103(a) as being allegedly unpatentable over U.S. Patent No. 6,553,063 to Lin, *et al.* (“*Lin*”). For at least the reasons set forth below, the rejection should be withdrawn and the claims allowed.

### ***Independent Claim 1***

Applicant submits that independent claim 1 is patentable over *Lin* for at least the reason that *Lin* does not disclose, teach, or suggest every feature of claim 1.

For example, the Applicant respectfully submits that independent claim 1 defines over *Lin* for at least the reason that *Lin* fails to disclose, teach, or suggest “receiving information ***from a destination transceiver***, the ***information comprising a first look-up table*** and relating to a plurality of signal space constellation points supported by the destination transceiver” as recited in independent claim 1.

Additionally, claim 1 is patentable over *Lin* for at least the additional and independent reason that *Lin* does not disclose, teach, or suggest that “based on the information ***from the destination transceiver***, encoding an integer number of bits into a plurality of symbols ***using the look-up table***, the ratio of the integer number of bits and the plurality of symbols being a non-integer” as recited in claim 1.

With respect to these elements, although the transceivers of *Lin* are apparently capable of selectable bit rates, the constellation tables 80 (apparently alleged by the Office Action to provide the selectable encoding) within the transceivers are apparently fixed, and are not provided by another transceiver. *Lin* makes no mention of how these tables are acquired and/or can be made to be compatible with another transceiver. Thus, it is apparent that the transceivers disclosed in *Lin* can suffer from compatibility problems with transceivers that do not employ corresponding tables.

Thus, *Lin*, does not teach, or render obvious, the steps of “receiving information from a destination transceiver, the information comprising a first look-up table,” nor

“encoding an integer number of bits into a plurality of symbols using the look-up table” as recited in claim 1. Accordingly, independent claim 1 should be allowed for at least these reasons. Furthermore, because independent claim 1 is allowable over *Lin*, dependent claims 3 – 5, 7 – 12, and 71 – 72 are allowable as a matter of law for at least the reason that they contain all the features and elements of independent claim 1, from which they depend.

#### ***Independent Claim 14***

The Office Action alleges “claim 14 is rejected on the same ground as for claim 1.” (Office Action, page 9). However, Applicant submits that independent claim 14 is patentable over *Lin* for at least the reason that *Lin* does not disclose, teach, or suggest every feature of claim 14.

For example, the Applicant respectfully submits that independent claim 14 defines over *Lin* for at least the reason that *Lin* fails to disclose or otherwise teach “means for receiving information ***from a destination transceiver***, the ***information comprising a first look-up table***” as recited in independent claim 14.

Additionally, claim 14 is patentable over *Lin* for at least the additional and independent reason that *Lin* does not disclose, teach, or suggest that “means for encoding, based on the information ***from the destination transceiver***, an integer number of bits into a plurality of symbols ***using the look-up table***” as recited in claim 14.

With respect to these elements, although the transceivers of *Lin* are apparently capable of selectable bit rates, the constellation tables 80 (apparently alleged by the Office Action to provide the selectable encoding) within the transceivers are apparently

fixed, and are not provided by another transceiver. *Lin* makes no mention of how these tables are acquired and/or can be made to be compatible with another transceiver. Thus, it is apparent that the transceivers disclosed in *Lin* can suffer from compatibility problems with transceivers that do not employ corresponding tables.

Thus, *Lin*, does not teach, or render obvious, the elements of “means for receiving information from a destination transceiver, the information comprising a first look-up table,” nor “means for encoding, based on the information from the destination transceiver, an integer number of bits into a plurality of symbols using the look-up table” as recited in claim 14. Accordingly, independent claim 14 should be allowed for at least these reasons. Furthermore, because independent claim 14 is allowable over *Lin*, dependent claims 16 – 25 and 73 - 74 are allowable as a matter of law for at least the reason that they contain all the features and elements of independent claim 14, from which they depend.

#### ***Independent Claim 26***

Applicant submits that independent claim 26 is patentable over *Lin* for at least the reason that *Lin* does not disclose, teach, or suggest every feature of claim 26.

For example, the Applicant respectfully submits that independent claim 26 defines over *Lin* for at least the reason that *Lin* fails to disclose, teach, or suggest “a receiver adapted to receive information ***from a destination transceiver***, the information ***comprising a first look-up table***” as recited in independent claim 26.

Additionally, claim 26 is patentable over *Lin* for at least the additional and independent reason that *Lin* does not disclose, teach, or suggest “a fractional encoder

associated with the receiver, the fractional encoder adapted to encode an integer number of bits into a plurality of symbols ***based on the look-up table***” as recited in claim 26.

With respect to these elements, although the transceivers of *Lin* are apparently capable of selectable bit rates, the constellation tables 80 (apparently alleged by the Office Action to provide the selectable encoding) within the transceivers are apparently fixed, and are not provided by another transceiver. *Lin* makes no mention of how these tables are acquired and/or can be made to be compatible with another transceiver. Thus, it is apparent that the transceivers disclosed in *Lin* can suffer from compatibility problems with transceivers that do not employ corresponding tables.

Thus, *Lin*, does not teach, or render obvious, the elements of “a receiver adapted to receive information from a destination transceiver, the information comprising a first look-up table,” nor “a fractional encoder associated with the receiver, the fractional encoder adapted to encode an integer number of bits into a plurality of symbols based on the look-up table” as recited in claim 26. Accordingly, independent claim 26 should be allowed for at least these reasons. Furthermore, because independent claim 26 is allowable over *Lin*, dependent claims 27 – 29, 31 – 35 and 75 – 76 are allowable as a matter of law for at least the reason that they contain all the features and elements of independent claim 26, from which they depend.

### ***Independent Claim 36***

Applicant submits that independent claim 36 is patentable over *Lin* for at least the reason that *Lin* does not, disclose, teach, or suggest every feature of claim 36.

For example, the Applicant respectfully submits that independent claim 36 defines over *Lin* for at least the reason that *Lin* fails to disclose, teach, or suggest “providing information *to a source transceiver*, the *information comprising a first look-up table adapted to enable the source transceiver to encode an integer number of bits into a plurality of symbols*” as recited in independent claim 36.

With respect to this element, although the transceivers of *Lin* are apparently capable of selectable bit rates, the constellation tables 80 (apparently alleged by the Office Action to provide the selectable encoding) within the transceivers are apparently fixed, and are not provided by another transceiver. *Lin* makes no mention of how these tables are acquired and/or can be made to be compatible with another transceiver. Thus, it is apparent that the transceivers disclosed in *Lin* can suffer from compatibility problems with transceivers that do not employ corresponding tables.

Thus, *Lin*, does not teach, or render obvious, the elements of “providing information to a source transceiver, the information comprising a first look-up table adapted to enable the source transceiver to encode an integer number of bits into a plurality of symbols” as recited in claim 36. Accordingly, independent claim 36 should be allowed for at least these reasons. Furthermore, because independent claim 36 is allowable over *Lin*, dependent claims 37 – 40, 42 – 46 and 77 are allowable as a matter of law for at least the reason that they contain all the features and elements of independent claim 36, from which they depend.



### ***Independent Claim 48***

Applicant submits that independent claim 48 is patentable over *Lin* for at least the reason that *Lin* does not disclose, teach, or suggest every feature of claim 48.

For example, the Applicant respectfully submits that independent claim 48 defines over *Lin* for at least the reason that *Lin* fails to disclose or otherwise teach “means for providing information ***to a source transceiver, the information comprising a first look-up table,***” as recited in independent claim 48.

With respect to this element, although the transceivers of *Lin* are apparently capable of selectable bit rates, the constellation tables 80 (apparently alleged by the Office Action to provide the selectable encoding) within the transceivers are apparently fixed, and are not provided by another transceiver. *Lin* makes no mention of how these tables are acquired and/or can be made to be compatible with another transceiver. Thus, it is apparent that the transceivers disclosed in *Lin* can suffer from compatibility problems with transceivers that do not employ corresponding tables.

Thus, *Lin* does not teach, or render obvious, the element of “means for providing information to a source transceiver, the information comprising a first look-up table” as recited in claim 48. Accordingly, independent claim 48 should be allowed for at least these reasons. Furthermore, because independent claim 48 is allowable over *Lin*, dependent claims 49 – 52, 54 – 58, and 87 are allowable as a matter of law for at least the reason that they contain all the features and elements of independent claim 48, from which they depend.

### ***Independent Claim 60***

Applicant submits that independent claim 60 is patentable over *Lin* for at least the reason that *Lin* does not disclose, teach, or suggest every feature of claim 60.

For example, the Applicant respectfully submits that independent claim 60 defines over *Lin* for at least the reason that *Lin* fails to disclose or otherwise teach “a transmitter adapted to provide information ***to a source transceiver***, the information ***comprising a first look-up table adapted to enable the source transceiver to encode an integer number of bits into a plurality of symbols***,” as recited in independent claim 60.

With respect to this element, although the transceivers of *Lin* are apparently capable of selectable bit rates, the constellation tables 80 (apparently alleged by the Office Action to provide the selectable encoding) within the transceivers are apparently fixed, and are not provided by another transceiver. *Lin* makes no mention of how these tables are acquired and/or can be made to be compatible with another transceiver. Thus, it is apparent that the transceivers disclosed in *Lin* can suffer from compatibility problems with transceivers that do not employ corresponding tables.

Thus, *Lin* does not teach, or render obvious, the element of “a transmitter adapted to provide information to a source transceiver, the information comprising a first look-up table adapted to enable the source transceiver to encode an integer number of bits into a plurality of symbols” as recited in claim 60. Accordingly, independent claim 60 should be allowed for at least these reasons. Furthermore, because independent claim 60 is allowable over *Lin*, dependent claims 61 – 64, 66- 69, 70, and 82 are allowable as a matter of law for at least the reason that they contain all the features and elements of independent claim 60, from which they depend.

### ***Independent Claims 47 and 59***

In that claims 47 and 59 are canceled, the § 103 rejections to claims 47 and 59 are moot.

### ***Dependent Claims 7 – 9, 11 – 12, 20 – 22, 24 – 25, 31 – 33, 35, 40, 42 – 43, 52, 54 – 55, 64, 66 – 67, 71 – 82, and 87***

The Applicant submits that dependent claims 7 – 9, 11 – 12, 20 – 22, 24 – 25, 31 – 33, 35, 40, 42 – 43, 52, 54 – 55, 64, 66 – 67, 71 – 82 and 87 are patentable over *Lin* for at least the reasons set forth above with respect to their corresponding independent claims. Accordingly, claims 7 – 9, 11 – 12, 20 – 22, 24 – 25, 31 – 33, 35, 40, 42 – 43, 52, 54 – 55, 64, 66 – 67, 71 – 82 and 87 are allowable for at least the reason that they depend from their respective base claim, each of which are believed to be allowable as set forth above.

### **III. Claims 3 – 4, 16 – 17, 27 – 28, 37 – 38, 44 – 45, 49 – 50, 56 – 57, 61 – 62, 68 – 69, 83 – 84 and 88 – 89 are Patentable Over *Lin* and *Wei* in View of *Williams***

The Office Action also rejects claims 3 – 4, 16 – 17, 27 – 28, 37 – 38, 44 – 45, 49 – 50, 56 – 57, 61 – 62, 68 – 69, 83 – 84 and 88 – 89 under 35 U.S.C. §103(a) as being allegedly unpatentable over *Lin* and U.S. Patent No. 5,559,561 to Wei (“*Wei*”) in view of U.S. Patent No. 5,995,548 to Williams (“*Williams*”). However, the Applicant submits that the rejection to dependent claims 3 – 4, 16 – 17, 27 – 28, 37 – 38, 44 – 45, 49 – 50, 56 – 57, 61 – 62, 68 – 69, 83 – 84 and 88 – 89 is rendered moot in light of the arguments made above and, therefore, claims 3 – 4, 16 – 17, 27 – 28, 37 – 38, 44 – 45, 49 – 50, 56 – 57, 61 – 62, 68 – 69, 83 – 84 and 88 – 89 are allowable as a matter of law for at least the reason that claims 3 – 4, 16 – 17, 27 – 28, 37 – 38, 44 – 45, 49 – 50, 56 – 57, 61 – 62, 68

– 69, 83 – 84 and 88 - 89 contain all the features and elements of their corresponding independent claims.

**IV. Claims 5, 18, 29, 39, 46, 51, 58, 63, 70, 85 and 90 are Patentable Over *Lin and Wei* in View of *Brownlie***

The Office Action also rejects claims 5, 18, 29, 39, 46, 51, 58, 63, 70, 85 and 90 under 35 U.S.C. §103(a) as being allegedly unpatentable over *Lin* and *Wei* in view of U.S. Patent No. 5,493,586 to Brownlie (“*Brownlie*”). However, the Applicant submits that the rejection to dependent claims 5, 18, 29, 39, 46, 51, 58, 63, 70, 85 and 90 is rendered moot in light of the arguments made above and, therefore, claims 5, 18, 29, 39, 46, 51, 58, 63, 70, 85 and 90 are allowable as a matter of law for at least the reason that claims 5, 18, 29, 39, 46, 51, 58, 63, 70, 85 and 90 contain all the features and elements of their corresponding independent claims.

**V. Claims 10, 23, 34, 86 and 91 are Patentable Over *Lin and Wei* in View of *Eyuboglu***

The Office Action also rejects claims 10, 23, 34, 86 and 91 under 35 U.S.C. §103(a) as being allegedly unpatentable over *Lin* and *Wei* in view of U.S. Patent No. 5,214,672 to Eyuboglu (“*Eyuboglu*”). However, the Applicant submits that the rejection to dependent claims 10, 23, 34, 86 and 91 is rendered moot in light of the arguments made above and, therefore, claims 10, 23, 34, 86 and 91 are allowable as a matter of law for at least the reason that claims 10, 23, 34, 86 and 91 contain all the features and elements of their corresponding independent claims.

## **VI. Prior Art Made of Record**

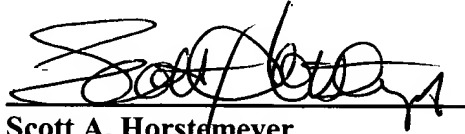
The prior art made of record has been considered, but is not believed to affect the patentability of the presently pending claims.

### **CONCLUSION**

The Applicant respectfully submits that all claims are now in condition for allowance, and request that the Examiner pass this case to issuance. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

No fee is believed to be due in connection with this response. If, however, any fee is deemed to be payable, you are hereby authorized to charge any such fee to Deposit Account No. 20-0778.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Scott A. Horstemeyer', written over a horizontal line.

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